

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

--	--	--	--	--	--	--	--	--	--

# MULTIMEDIA UNIVERSITY

## FINAL EXAMINATION

TRIMESTER 2, 2015/2016

### BFN3304 – FINANCIAL AND VALUATION MODELLING

( All sections / Groups )

29 FEBRUARY 2016

9:00 a.m. - 11.00 a.m.

( 2 Hours )

---

#### INSTRUCTIONS TO STUDENTS

1. This question paper consists of **TEN (10)** printed pages (excluding the cover page) with **THREE (3)** questions. Pages **5 to 10** contain the **Excel templates** for answering the questions.
2. Fill in all the details needed in the **Answer Template cover page** on **Page 4**.
3. Show **ALL Excel commands** in the **Excel template** provided at the end of the question paper. Marks are shown at the end of each question.
4. Save all answers in the **thumbdrive** provided. The filename should be in the form: **ID Number\_Table No.**
5. Submit the question paper together with the thumbdrive provided.

**QUESTION 1 (30 Marks)**

As an analyst at AliBaba Securities, you are responsible for making recommendations to your firm's clients regarding common stocks. After gathering data on ABC Semiconductors, you have found that its dividend has been growing at a rate of 8% per year to the current dividend ( $D_0$ ) RM1.25 per share. The stock is now selling for RM24 per share and you believe that an appropriate rate of return for this stock is 15% per year.

- a) If you expect that the dividend will grow at a 8% rate into the foreseeable future, what is the highest price at which you would recommend purchasing this stock to your clients?

(4 marks)

- b) Suppose now that you believe that the company's new product line will cause much higher growth in the near future. Your new estimate is that the growth rate over the next five years will be 20%, followed by a return to the historical 8% growth rate. Under these new assumptions,

- i. calculate the dividends for each year.

(9 marks)

- ii. calculate the present value of the dividends using the **PV** function in Excel and then the value of the stock as the sum of the present values.

(7 marks)

- iii. calculate the value of the stock using the two-stage dividend growth model formula:

$$\frac{Div_0 (1 + g_1) \left( 1 - \left( \frac{1 + g_1}{1 + r} \right)^m \right)}{r - g_1} + \frac{1}{(1 + r)^m} \frac{Div_0 (1 + g_1)^m (1 + g_2)}{r - g_2}$$

(4 marks)

- iv. Using Excel Solver/Goal Seek function, find the first stage growth rate,  $g_1$ , for which the stock value is equal to the current stock price?

(6 marks)

Continued...

**QUESTION 2 (20 Marks)**

The Excel template containing the stock price of Genting Malaysia Bhd from January 1, 2013 to December 1, 2015 is provided in the thumbdrive. Using these stock prices,

- a) Calculate the monthly returns for Genting Malaysia Bhd.  
(3 marks)
- b) Calculate the monthly average and standard deviation.  
(3 marks)
- c) Calculate the annual average and standard deviation.  
(2 marks)
- d) Produce a simulation of one-year monthly stock prices for Genting Malaysia Bhd. using the formula:

$$E(S_1) = S_0 * e^{\mu \Delta t + \sigma Z \sqrt{\Delta t}}$$

(12 marks)

Continued...

**QUESTION 3 (25 Marks)**

At a close of trading on April 30, 2015, the stock price of ABC Corporation was RM1.37, the standard deviation of daily returns is 38.67%, the yield on a six-month Treasury bill was 2.44%, the exercise price of a European call on ABC Corporation was RM1.40, and the time to maturity for the call option was 6 months. Using a two-step tree and the delta-hedging Binomial Options Pricing model, what is the price of the European call option on ABC Corporation?

(Note:  $u = e^{\sigma\sqrt{\Delta t}}$  and  $v = 1/u$ )

Continued...

# ANSWER TEMPLATE

## BFN3304 – FINANCIAL AND VALUATION MODELLING

Table No:	
ThumbDrive No:	
Student ID Number:	
Course:	
Examination Date:	
Venue:	

QUESTION	MARKS
TOTAL	

## Solutions templates

	A	B	C	D	E
1	Question 1				
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					

	A	B	C	D	E
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					

	A	B	C	D	E
1	Question 2				
2					
3	Date	Genting Malaysia Bhd	Returns		
4	01-Jan-13	4.11			
5	01-Feb-13	3.94			
6	01-Mar-13	4.09			
7	01-Apr-13	4.07			
8	01-May-13	4.21			
9	03-Jun-13	4.07			
10	01-Jul-13	4.25			
11	01-Aug-13	4.11			
12	02-Sep-13	4.18			
13	01-Oct-13	4.09			
14	01-Nov-13	4.04			
15	02-Dec-13	3.99			
16	01-Jan-14	3.73			
17	03-Feb-14	3.69			
18	03-Mar-14	3.56			
19	01-Apr-14	3.42			
20	01-May-14	3.5			
21	02-Jun-14	3.47			
22	01-Jul-14	3.36			
23	01-Aug-14	3.24			
24	01-Sep-14	3.4			
25	01-Oct-14	3.31			
26	03-Nov-14	3.3			
27	01-Dec-14	3.15			
28	01-Jan-15	3.37			



	A	B	C	D	E
29	02-Feb-15	3.4			
30	02-Mar-15	3.54			
31	01-Apr-15	3.62			
32	01-May-15	3.61			
33	01-Jun-15	3.73			
34	01-Jul-15	3.53			
35	03-Aug-15	3.61			
36	01-Sep-15	3.55			
37	01-Oct-15	3.24			
38	02-Nov-15	3.03			
39	01-Dec-15	3.33			
40					
41	Monthly Average				
42	Monthly Standard Deviation				
43					
44	Annual Average				
45	Annual Standard Deviation				
46					
47	Current Stock Price				
48	Mean				
49	Volatility				
50	Delta t				
51					

	A	B	C	D	E
52	Month	Z	Stock Price		
53	0				
54	1				
55	2				
56	3				
57	4				
58	5				
59	6				
60	7				
61	8				
62	9				
63	10				
64	11				
65	12				
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					

	A	B	C	D	E
1	Question 3				
2					
3	Current Stock Price, $S_0$				
4	Volatility				
5	Interest rate, $r$				
6	Exercise Price of Call				
7	Time to maturity				
8	delta $t$				
9					
10	$u$				
11	$v$				
12					
13	Option Price				
14					
15	Two timesteps		One timestep		Expiry
16	before expiry		before expiry		
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					

End of Page